

What is claimed is :

1. A sterilized safety syringe which is communicated with
an air compressor using air feeding pipes for performing
5 infusing drugs into the patient body or extracting the body
fluid therefrom, essentially comprising:

a syringe tube having an injection needle inserted at its
tip, the inner part of said tube being formed a cavity and a
guide slot being formed between its outer surface and the
10 inner wall of said syringe tube, said guide tube passing
through the front wall surface of said syringe tube, and having
a protrusion at its front end, a plunger being provided in said
cavity and being closely in contact with the inner wall surface
of said cavity, the rear end of said syringe tube being in a
15 sealed state where said cavity and said guide slot are
communicated with a plurality of air feeding pipes of said air
compressor via an air conducting pipe;

a protective cover having a drilled hole at its front end
and being provided with a sliding plate at its rear end thereof,
20 said sliding plate being provided with a fixed part at its front
portion, and an annular flange at its rear end, wherein said
annular flange has a check fitting formed at its front edge;

a sterilizer has a pallet formed at the front end of its
main body, and a sterilized cotton swab being affixed to said
25 pallet, a film formed at the front end of said main body being
for sealing said pallet, while the rear end of said main body
being formed into a plug; wherein

said sliding plate of said protective cover is fitted into said guide slot of said syringe tube and being forcibly in close contact with the wall of said guide slot with said annular flange, said plug formed at the rear end of said sterilizer is plugged into said drilled hole of said protective cover.

2.The sterilized safety syringe as in claim 1, wherein number of said sliding plate forme at the rear end of said protective cover is one or more than one.

3.The sterilized safety syringe as in claim 1, wherein said main body of said sterilizer and said plug are formed of a soft rubber or plastic substance.

4.The sterilized safety syringe as in claim 1, wherein said sterilized cotton swab is replaceable with an alcohole cotton swab or the like.

5.The sterilized safety syringe as in claim 1, wherein said film for sealing said sterilized cotton swab attached at the front end of the main body of said sterilizer is replaceable by forming more than one protuberances on the rim of said main body, and an annular ring provided ahead of a container is used to fit on the rim of said main body, and several breaches formed at the positions corresponding to said protuberances, and a protruded tip is formed ahead of the opening of each breach, besides, a pallet with said sterilized cotton swab is provided in front of said container and said pallet is sealed with said film.

6.The sterilized safety syringe as in claim 1, wherein, a

doping cotton swab intercalated between front and rear sealing films which are adhered each other is used.

7.The sterilized safety syringe as in claim 1, wherein a knob is provided at the rear part of said main body.

5 8.The sterilized safety syringe as in claim 1, a center drilled hole is opened through said main body of said sterilizer and said sterilized cotton swab, and a confinement slot is formed at the rear end of said plug of said sterilizer, a cork gasket made of an elastic plastic or rubber substance is
10 provided by inserting into the neezle ahead of said syringe tube.

9.The sterilized safety syringe as in claim 1, wherein a pressure sensor connected to said air compressor is installed at the front end of said main body of said sterilizer.

15 10.The sterilized safety syringe as in claim 1, wherein said plunger in the syringe tube is replaceable with an air filled bag.

11.The sterilized safety syringe as in claim 1, wherein a sensing paper is provided at the front end of said air feeding
20 pipe.

12.The sterilized safety syringe as in claim 1, wherein said air compressor is connected with a display terminal and an alarm, when injection operation is finished, or there is a clogging or leakage of fluid at the exit of the needle, an
25 audible warning is delivered from said alarm to caution the operator.

13.The sterilized safety syringe as in claim 1, wherein
said air compressor is connected with a controller, an encoder,
a flow meter, and a plunger position detector for detecting the
position of said plunger in said syringe tube so as to perceive
5 time required for injection operation, and adjust the speed of
operation for appropriate time and quantitative control by
means of cooperated operation of said controller, encoder, and
flow meter.

14.The sterilized safety syringe as in claim 1, wherein an
10 air filled doughnut is connected to said air compressor via
said air feeding pipe, and said air filled doughnut is provided
with a pressure sensor.

15.The sterilized safety syringe as in claim 1, wherein a
coil spring is provided for said air compressor with the front
15 end of said coil spring conjuncted to the rear end of said
plunger in said needle tube with a metallic wire.

16.The sterilized safety syringe as in claim 1, wherein a
rotating shaft is provided to said air compressor, and said
metallic wire is wound around said rotating shaft, and the
20 front end of said metallic wire is attached to the rear end of
said plunger in said injection tube.

17.The sterilized safety syringe as in claim 1, wherein
said air compressor is associated with a frequency changer.

18.The sterilized safety syringe as in claim 1, wherein
25 both said annular flange and said check fitting of said
protector cover are formed in the inner side of said sliding

plate.

19.The sterilized safety syringe as in claim 1, wherein more than one exhausting holes are provided on the outer front surface of said syringe tube.

5 20.The sterilized safety syringe as in claim 1, wherein said check fitting of said protective cover is saved, and instead, several protuberances are formed on the rear outer surface of said protective cover, and several apertures which corresponding in number and position to said protuberances
10 are opened on the front outer surface of said syringe tube.

21.The sterilized safety syringe as in claim 1, wherein said check fitting of said protective cover is saved, and instead, several apertures are opened on the rear outer surface of said protective cover, and several protuberances which
15 corresponding in number and position to said apertures are formed on the front outer surface of said syringe tube.

22.The sterilized safety syringe as in claim 1, wherein the rear end of said syringe tube is not sealed, and said air conducting pipe is connected to said guide slot, and said
20 plunger, and said plunger with the other air conducting tube connected to said cavity is provided at the rear end of said syringe tube.

23.The sterilized safety syringe as in claim 1, wherein a protruded annular protector is formed at the front end of said
25 protective cover.

24.The sterilized safety syringe as in claim 1, wherein

said annular protector formed at the front end of said protective cover affixed with a single sliding plate to its rear end thereof is formed at the front end of said protective cover, and a sliding groove corresponding to said single sliding plate
5 is formed along the outer surface of said cavity of said syringe tube.

25. The sterilized safety syringe as in claim 24, wherein said single sliding plate has a fixed part at its front end, and an annular flange is formed around its rear fringe, a check
10 fitting is provided to the outer fringe of said single sliding plate ahead of said annular flange.

26. The sterilized safety syringe as in claim 1, wherein said protective cover is provided with a coil spring which being in conjunction with the front end of said syringe tube.

15 27. The sterilized safety syringe as in claim 1, wherein said guide slot of said syringe tube is provided with a coil spring in it which is in conjunction with the rear end of said annular flange.

28. The sterilized safety syringe as in claim 1, wherein
20 said sterilizer is equipped at the middle tip of said syringe tube, the main body of said sterilizer has an joint portion at the rear end thereof to adhere to, or to be jointed to said needle.

29. The sterilizer safety syringe as in claim 1, wherein
25 said plug provided at the rear end of said sterilizer main body is replaceable with a recessed joint protion.

30. A sterilized safety syringe essentially comprising:

a syringe tube having more than one guide rods formed along the outer surface thereof, wherein each of said guide rods has a round billet, said syringe tube being provided with
5 a piston rod whose front periphery is closely in contact with the inner wall of said syringe tube;

a protective cover having a drilled hole at its front end, and a sliding plate at its rear end thereof, several sliding grooves being formed along said sliding plate at the positions
10 corresponding to said guide rods respectively, a damper being provided near both front and rear ends of each sliding groove respectively such that both ends of each said sliding groove is formed into fixed terminals;

a sterilizer having a pallet provided at the front end of its
15 main body, wherein a sterilized cotton swab is affixed to said pallet, a film formed at the front end of said main body seals said pallet, while the rear end of said main body is formed into a plug; wherein

each said guide rod is inserted into said sliding groove of
20 said protective cover, and said round billet is clogged at the tip of said sliding groove, the plug of said sterilizer is plugged into said drilled hole of said protective cover.

31. The sterilized safety syringe as in claim 30, wherein both said main body and said plug of said sterilizer are formed
25 of soft rubber or soft plastic material.

32. The sterilized safety syringe as in claim 30, wherein

said sterilized cotton swab is replaceable with an alcohol cotton swab or other sterilized material.

33. The sterilized safety syringe as in claim 30, wherein the rear end of said main body of said sterilizer is formed into
5 a knob.

34. The sterilized safety syringe as in claim 30, wherein a center drilled hole is opened through said main body and said sterilized cotton swab, and a confinement slot is formed at the rear end of said plug, further, a cork gasket made of an elastic
10 rubber or plastic substance which is inserted into the needle ahead of said syringe tube.

35. The sterilized safety syringe as in claim 30, wherein said syringe tube has a cavity inside, and a guide slot is formed between the outer surface of said cavity and the inner
15 wall surface of said syringe tube, said guide slot emerges out of the front wall of said syringe tube, a coil spring is installed behind said guide slot, besides, said protective cover is provided with an elastic hasp mechanism which including a spring strap, a supporting stud, and an actuator plate, said
20 supporting plug is in contact with the front portion of said actuator plate, and a stop block is formed at the rear bottom portion of said actuator plate, more than two recesses are formed on the outer surface of said syringe tube in the position along the same lengthwise line with said stop block.

25 36. The sterilized safety syringe as in claim 35, wherein said coil spring is installed in said protective cover and is

fixed its one end to the front end of said syringe tube.

37. The sterilized safety syringe as in claim 30, wherein a
< shaped spring is provided on said syringe tube, and is in
conjunction with an actuator plate at the latter's rear bottom
5 with its supporting stud, while a stop block is provided at the
front bottom portion of said actuator plate, more than two
recesses are formed on said protective cover in the position
along the same lengthwise line with said stop block, a
concaved trap is formed at the bottom front end of said <
10 shaped spring, while a billet is formed at the rear end of said
protective cover in a position corresponding to said concaved
trap.

38. The sterilized safety syringe as in claim 37, wherein
said concaved trap formed on said < shaped spring is
15 replaceable with a billet, and said billet formed at the front
portion of said protective cover is replaceable with a concaved
trap.

39. The sterilized safety syringe as in claim 30, wherein
on said protective cover is provided with an elastic hasp
20 mechanism including a spring strap and a supporting strap in
contact with the front bottom portion of an actuate plate, and a
stop block is formed at the rear bottom portion of said actuate
plate, and a protuberance is formed on the outer surface of
said syringe tube, more than two recesses are formed on the
25 outer surface of said syringe tube in the position along the
same lengthwise line with said stop block of said elastic hasp

mechanism, a concaved trap is formed at the front tip of said protuberance, while a billet is formed on the rear end of the protective cover at the position corresponding to said concaved trap.

5 40.The sterilized safety syringe as in claim 39, wherein said billet formed at the rear end of said protective cover is replaceable with a concaved trap, conversely, said concaved trap formed ahead of said stop block is replaceable with a billet.

10 41.The sterilized safety syringe as in claim 30, wherein a rectangular opening is formed on said sliding plate at the rear end of said protective cover, and two button hooks are each formed on the front and rear surfaces of said syringe tube respectively aligning to said rectangular opening, an elastic
15 belt connecting a button head is provided on the surface of said protective cover.

 42.The sterilized safety syringe as in claim 30, wherein a rectangular opening is formed on said sliding plate at the rear end of said protective cover, and two button hooks are each
20 formed on the front and rear surfaces of said syringe tube respectively aligning to said rectangular opening, and a reed is formed on said protective cover on said protective cover at the front end of said rectangular opening, and a button head is formed on the rear inner side of said reed.

25 43.The sterilized safety syringe as in claim 42, wherein a folding hasp with a hook-on head is provided at the front end

of said protective cover.

44. The sterilized safety syringe as in claim 30, wherein an annular ring is formed around the front end of said syringe tube instead of said guide rod formed along the outer surface of said syringe tube, and several guide pipes are formed on the
5 fringe of said annular fringe each of them being aligning to the corresponding sliding groove, moreover, a tube enclosure is covered over said syringe tube, and several billets are formed on the front tip of said tube enclosure, while several
10 concaved traps equal to number of, and facing against said billets are formed on the rear end of said protective cover, wherein above said billets on said tube enclosure are replaceable with above said concaved traps, while said concaved traps on the rear end of said protective cover are
15 replaceable with said billets.

45. The sterilized safety syringe as in claim 44, wherein on said protective cover is provided with an elastic hasp mechanism including a spring strap and a supporting stud in contact with the front bottom portion of an actuate plate, and a
20 stop block is formed at the rear bottom portion of said actuate plate, more than two recesses are formed on the outer surface of said syringe tube in the position along the same lengthwise line with said stop block.

46. The sterilized safety syringe as in claim 45, wherein a
25 < shaped spring is provided on said tube enclosure, said < shaped spring is in contact with the rear bottom end of an

actuate plate with a supporting stud, a stop block is formed on the front bottom end of said actuate plate, and more than two recesses are formed on said protective cover in the position along the same lengthwise line with aid stop block.

5 47. The sterilized safety syringe as in claim 30, wherein a hose passing through the plunger and connected with a needle point is provided in said cavity instead of said piston rod, and said needle point is covered with an enclosure made of a compressible substance.

10 48. The sterilized safety syringe as in claim 41, wherein only a button hook is provided on the front portion of said syringe tube, and an elastic belt together with a button head is provided both on front and rear portions of said protective cover respectively.

15 49. The sterilized safety syringe as in claim 30, wherein said sterilizer is equipped at the needle tip of said syringe tube, the main body of said sterilizer has a joint portion at the rear end thereof to adhere to, or to be jointed to said needle.

20 50. The sterilized safety syringe as in claim 30, wherein said plug provided at the rear end of said sterilizer main body is replaceable with a recessed joint portion.

25 51. The sterilizer safety syringe as in claim 20, wherein two back-to-back faced humpbacked hook blocks are coaxially formed on the outer surface of said syringe tube, whereas a tap plate is provided at the rear end of said protective cover in a

position along the same line with said two hook blacks, and a hook joint is formed beneath said top plate.

52.The sterilized safety syringe tube as in claim 30, wherein said sliding groove formed on said protective cover
5 has two trap holes perpendicular to said sliding groove each provided at one said thereof at a position close to front and rear ends thereof, said trap hole located at one side of said sliding groove's rear end is extended backwards and pierces through said protective cover, an annular ring is encircling
10 around the front end of said syringe tube and having a flexed strap connected with a stop block to be trapped into said trap hole.

53.The sterilized safety syringe tube as in claim 52, wherein a protuberance is formed at the contacting point of
15 each said trap hole with said sliding groove to detain said stop block.

54.The sterilized safety syringe tube as in claim 52, wherein said flexed strap is directly equipped on the outer surface of said syringe tube, and said trap hole is not to
20 penetrate said protective cover but is directly sleeved over said syringe tube during the fabrication process so as to cause said flexed strap on the outer surface of said syringe tube is emerged out along said sliding groove of said protective cover.

25 55.The sterilized safety syringe tube as in claim 52, wherein said flexed strap is replaceable with a stopper having

a grip provided thereon, and a slide rod extended from its bottom thereof, a button is provided at said slide rod's end portion, an inlet slot having a fixed hole at its bottom, and a containment hole at its middle portion, is formed on said annular ring.

56. The sterilized safety syringe tube as in claim 55, wherein said annular ring is omitted, and an inlet slot having a fixed hole at its bottom, and a containment hole at its middle portion, is formed on the outer surface of said syringe tube.

57. The sterilized safety syringe as in claim 55, wherein a slide rod with a tip button is provided on said annular ring, and an inlet slot with a tip fixed hole and a middle containment hole is provided at the bottom portion of said stopper.

58. The sterilized safety syringe as in claim 57, wherein said annular ring is omitted and said slide rod is directly formed on the outer surface of said syringe tube.